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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,236	09/08/2003	Gang Yu	UC0013 US NA	4110

23906 7590 06/15/2006

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EXAMINER	
RIELLEY, ELIZABETH A	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/658,236	YU ET AL.	
	Examiner	Art Unit	
	Elizabeth A. Rielley	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5,6,9-13 and 19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5,6,9-13 and 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *all*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Amendment filed 4/3/06 has been entered and considered by the Examiner. Currently, claims 1, 3, 5, 6, 9-13 and 19 are pending in the instant application.

Specification

The amendment filed 4/3/06 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the phrase "λ and can be further expressed as $\Delta\varphi(\lambda/2\pi)$" has been added both to the specification and claims. This further expression of λ was not described in the original specification.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Objections

Claims 3 and 9 are objected to because of the following informalities: Claims 3 and 9 recite Equations 1 and 2. These two equations are unclear due to a units problem. It is unclear how $2\eta d\cos(\theta)$, which is still in units of length, can be added to a degree: "φ". The Equations may be written as $2\eta d\cos(\theta + \varphi)$ or $2\eta d\,[\cos(\theta) + \cos(\varphi)]$. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 3 and 9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the original specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The phrase "λ and can be further expressed as $\Delta\varphi(\lambda/2\pi)$" has been added both to the specification and claims. This further expression of λ was not described in the original specification.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5, 6, 10, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Shen et al (US 6232714).

In regard to claim 1, Shen et al ('714) disclose an organic electronic device comprising a first electrode (202; figure 2; column 3 line 18 to column 4 line 55), a second electrode (206), and an organic active layer (204), wherein: the first electrode lies on an opposite side of the organic active layer compared to the second electrode; and at least one layer selected from the first electrode, the second electrode, a hole-transport layer, an electron-transport layer, and the organic active layer is configured to achieve low $L_{background}$ (the Applicant's specification page 3 lines 12-20 teach that is Equation 3 is less than 30%, the layers used are configured to achieve low $L_{backround}$; Table 1 lists the index of refraction for all the layers of OLED 200; the electroluminescent layer index of refraction is 1.72 and the ETL is 1.72. Therefor, the organic active layer is configured to achieve a low $L_{background}$).

In regard to claim 5, Shen et al ('714) teach an organic electronic device comprising: an organic active layer (204); and a first electrode (202) having a side opposite the organic active layer, wherein: the first electrode comprises a first electrode layer lying at the side opposite the organic active layer (see figure 2); and the first electrode layer is configured to achieve low $L_{background}$ (the Applicant's specification page 3 lines 12-20 teach that is Equation 3 is less than 30%, the layers used are configured to achieve low $L_{backround}$; Table 1 lists the index of refraction for all the layers of OLED 200; the first electrode used is 209a and 209b, the index of refraction is 2.2 and 2.1. Therefore, using Equation 3, the organic active layer is configured to achieve a low Lbackground).

In regard to claim 6, Shen et al ('714) teach a second electrode (206), wherein: the organic active layer lies between the first electrode and the second electrode (see figure 2); a second electrode has a side opposite the organic active layer; and the second electrode comprises a second electrode layer lying at the side opposite the organic active layer; and wherein the second electrode layer is configured to achieve low $L_{background}$ (the Applicant's specification page 3 lines 12-20 teach that is Equation 3 is less than 30%, the

layers used are configured to achieve low $L_{backround}$; Table 1 lists the index of refraction for all the layers of OLED 200; the second electrode used is 212 which has a reflective layer 213 on top, the index of refraction is 1.3 for each. Therefore, using Equation 3, the organic active layer is configured to achieve a low $L_{background}$).

In regard to claim 10, Shen et al ('714) teach an interfacial reflectivity is no greater than about 30 percent, wherein the interfacial reflectivity is determined by Equasion 3 (see Table 1 and arguments above).

In regard to claim 19, Shen ('714) teach the organic electronic device is selected from the group of light-emitting displays, radiation sensitive devices, photoconductive cells, photoresistors, photoswitches, photodetectors, phototransistors, and phototubes (column 1 lines 25-41).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al (US 6232714) in view of Applicant's admitted prior art.

Shen et al ('714) teach all the limitation set forth, as described above, except that at least one electrode layer and/or the first electrode layer has a thickness in a range of d1-d2 that is given from Equations 1 and 2. However, the Applicant has admitted in the Arguments dated 4/3/06 that these Equations are known in the art as "standard wave equations for constructive and destructive interferences, which can be found in most basic optics textbooks". The MPEP states that "[w]here the specification identifies work done by another as "prior art," the subject matter so identified is treated as admitted prior art. In re Nomiya, 509 F.2d 566, 571, 184 USPQ 607, 611 (CCPA 1975). Thus, it would have been obvious at the time of the invention to one of ordinary skill in the art to modify the OLED of Shen et al ('714) with thickness range given by Equations 1 and 2. Motivation for combining would be construct and destruct interferences within the OLED.

Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shen et al (US 6232714) in view of Yap (US 6307528).

Shen et al ('714) disclose all the limitations set forth, as described above, except the first electrode layer comprises a metal selected from a transition metal and an elemental metal, the metal is selected from a group consisting of Au, Cr, Si, and Ta, and the first electrode layer further comprises an oxide of the metal. Yap ('528) disclose an electrode layer (column 6 lines 15-18) comprises a metal selected from a transition metal and an elemental metal, the metal is selected from a group consisting of Au, Cr, Si, and Ta, and the first electrode layer further comprises an oxide of the metal (column 4 lines 22-34) in order to lower reflectance (column 4 lines 22-25), which would lower the $L_{background}$ as discussed in applicant's specification page 2 lines 14-16. Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to combine the display of Shen with the electrode material of Yap. Motivation to combine would be to lower the reflectance.

Response to Arguments

Applicant's arguments filed 4/3/06 have been fully considered but they are not persuasive.

In regard to Applicant's argument that the prior art of record fails to teach an OLED that achieves $L_{background}$, the Examiner respectfully disagrees. Shen teaches an OLED with specific indexes of refractions. Applicant's specification page 3 lines 12-20 states that if Equation 3 is less than 30%, the layers used are configured to achieve low $L_{backround}$; Table 1 lists the index of refraction for all the layers of OLED 200 and the electroluminescent layer index of refraction is 1.72 and the ETL is 1.72. Therefore, the organic active layer, which is part of the OLED, is configured to achieve a low $L_{background}$. This same argument is used for the first electrode layer within the OLED; please see description above. Therefore, the prior art of record teaches all the limitations in the current application.

In regard to Applicant's argument that the prior art of record fails to teach a transition metal and an elemental metal or oxide of the metal, the Examiner respectfully disagrees. Yap teaches an electrode made of a transition metal and an elemental metal, the metal is selected from a group consisting of Au, Cr, Si, and Ta, and the first electrode layer further comprises an oxide of the metal. These are alternating layers of silicon and silicon oxide, which are dark, conductive, low reflectance layers, which would lower the $L_{background}$ as discussed in applicant's specification page 2 lines 14-16. Therefore, the prior art of record teaches all the limitations in the current application.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth A. Rielley whose telephone number is 571-272-2117. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained

from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elizabeth Rielley

Examiner
Art Unit 2879

MARICELI SANTIAGO
PRIMARY EXAMINER